

**Listing of Claims:**

1. (currently amended) An apparatus comprising:  
a decoder to decode a plurality of data streams, said decoder having a state associated with each of said plurality of data streams; and  
a state restoration logic to restore said decoder's state upon switching from decoding one data stream to another data stream.
2. (currently amended) The apparatus as in claim 1 wherein said state restoration logic comprises: one or more memory arrays for storing said state[[s]] associated with each of said plurality of data streams.
3. (currently amended) The apparatus as in claim 2 having [[a]] said one or more memory arrays equal in number to said plurality of data streams decoded by said decoder.
4. (original) The apparatus as in claim 1 wherein said decoder is a Viterbi decoder.
5. (currently amended) The apparatus as in claim 1 wherein said state[[s]] associated with each of said plurality of data streams may be described by a trellis diagram.

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6. (currently amended) The apparatus as in claim 5 wherein said states associated with each of said plurality of data streams are comprised of survivor path data.

7. (currently amended) The apparatus as in claim 2 wherein said one or more memory arrays are is a forward-tracing decode arrays.

8. (original) The apparatus as in claim 1 wherein each of said data streams comprises multimedia data transmitted from a satellite transponder.

9. (currently amended) The apparatus as in claim 2 wherein said state restoration logic further comprises:

an accumulator buffer for temporarily storing accumulator values associated with each of said plurality of data streams, said accumulator values representing path metric values and being readable from said accumulator buffer to restore said state.

10. (currently amended) A method for concurrently decoding a plurality of data streams comprising:

decoding a first portion of a first data stream in said plurality of data streams, said first data stream having a state associated therewith following said decoding of said first portion;

decoding portions of other data streams in said plurality of data streams;

restoring said state associated with said first data stream; and

decoding a second portion of said first data stream in said plurality of data streams.

11. (original) The method as in claim 10 wherein each of said plurality of data streams has a memory array associated therewith, said memory arrays storing states associated with each of said data streams, and wherein restoring said state associated with said first data stream comprises switching to processing data through said memory array associated with said first state.

12. (original) The method as in claim 10 wherein decoding comprises Viterbi decoding and said state comprises survivor path data associated with said Viterbi decoding.

13. (original) The method as in claim 12 wherein said state further comprises a plurality of path metric values.

14. (currently amended) An apparatus comprising:  
a plurality of data arrays for storing survivor path data for a plurality of data streams;  
a buffer for storing a plurality of path metric values associated with each of said plurality of data streams; and

state restoration logic for selecting a particular data array and a particular set of path metric values associated with a particular data stream upon receiving a signal indicating a switch to decoding said particular data stream.

15. (original) The apparatus as in claim 14 wherein said data arrays are forward tracing arrays.

16. (original) The apparatus as in claim 15 wherein decoding comprises Viterbi decoding and said path metric values and said survivor path data are associated with a Viterbi trellis.

17. (original) The apparatus as in claim 14 wherein said indication of a switch from decoding one stream to another occurs are regular periodic intervals.

18. (currently amended) A machine-readable medium having code stored in ~~thereon which defines~~ an integrated circuit (IC), said IC comprising:

a decoder to decode a plurality of data streams, said decoder having a state associated with each of said plurality of data streams;

a state restoration logic to restore said decoder's state upon switching from decoding one data stream to another data stream.

19. (currently amended) The machine-readable medium as in claim 18 wherein said IC further comprises:

one or more memory arrays for storing said state[[s]] associated with each of said plurality of data streams.

20. (currently amended) The machine-readable medium as in claim 19 wherein said one or more memory arrays are equal in number to said plurality of data streams decoded by said decoder.

21. (original) The machine-readable medium as in claim 20 wherein said decoder is a Viterbi decoder.

22. (currently amended) The machine-readable medium as in claim 20 wherein said state[[s]] associated with each of said plurality of data streams ~~is may~~ be described by a trellis diagram.

23. (currently amended) The machine-readable medium as in claim 22 wherein said state[[s]] associated with each of said plurality of data streams are comprised of survivor path data.

24. (currently amended) The machine-readable medium as in claim 21 wherein said one or more memory arrays are ~~are~~ [[is a]] forward-tracing decode arrays.

25. (currently amended) The machine-readable medium as in claim 20 wherein each of said plurality of data streams comprises multimedia data transmitted from a satellite transponder.

26. (currently amended) The machine-readable medium as in claim 21 wherein said state restoration logic further comprises:

an accumulator buffer for temporarily storing accumulator values associated with each of said plurality of data streams, said accumulator values representing path metric values and being readable from said accumulator buffer to restore said state.

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